занимающихся на цикле по неврологии и неийрохирургии 68% – «часто» используют электронные учебники (в 2015 – 56%); 38% – «иногда» используют электронные пособия при подготовке к занятиям (в 2015 году – 35%); бесполезными электронные учебники не считает ни один студент (в 2015 году – 5% опрошенных студентов считали их бесполезными).

Выводы.

В последние годы дистанционное обучение стало неотъемлемой частью образовательного процесса, дополняя его инновационными организационными компонентами. Все проанкетированные студенты 4 курса лечебного факультета используют дистанционное обучение. Изменилось отношение студентов к использованию интернета при подготовке к занятиям. Так, по сравнению с 2015 годом, абсолютно все студенты, в той или иной мере («часто» или «иногда»), используют интернет ресурсы для получения дополнительной информации при подготовке к занятиям по неврологии и нейрохирургии. По–прежнему привлекает студентов наглядность и образность учебного материала при использовании презентаций на лекциях и практических занятиях. Все опрошенные студенты относятся к использованию электронных учебников положительно или нейтрально. В сравнении с 2015 годом никто из студентов не считает их бесполезными.

Таким образом, информационные технологии в образовательном процессе дают возможность выбора наиболее подходящих для студентов методов обучения, обеспечивают доступ к дополнительным образовательным ресурсам, способствуют лучшей адаптации студентов к учебному материалу.

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ORGANIZATION OF OUT-OF-CLASS INDEPENDENT WORK FOR STUDENTS OF THE FACULTY OF DENTISTRY IN THE DISCIPLNE «GENERAL CHEMISTRY»

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The main aim of the process of reforming of higher education is to improve the quality of education. A qualified expert should possess not only the disciplinary, but also interdisciplinary knowledge and skills. According to the educational standards of the Republic of Belarus to the requirements of the academic competences specialist should be able to work independently and continuously improve their professional level. The important characteristics of a graduate student are competence and mobility.

In the preparation of specialists with higher medical education play an important role of out-of-class independent work of students [1, 2].

For out-of-class studies, questions are offered on topics whose main material was discussed in lectures, individual questions are designed to broaden the view of students, deepen their knowledge, develop skills in research activities, and show elements of creativity. The

modern flow of information requires students to new types of skills and working skills with it, which must be formed at the beginning of professional activity.

The aim of out-of-class independent work is assimilation of educational material by students, the development of their cognitive activity [3].

Tasks of independent work:

-systematization of knowledge;
-statement and solution of cognitive tasks;
-ability to work with information, educational and scientific literature;
-practical application of knowledge, skills.

In the process of completing tasks of independent work, students will:

-collection and study of information;
-analysis, systematization and transformation of information;
-consultation with the teacher;
-realization of work;
-search for a method for submitting a completed task;
-presentation of work [4].

The department for students developed guidelines for preparation for classes on discipline «General Chemistry», which defines the main directions of independent work of students on preparation for classes. Guidelines for a particular topic include: medical and biological importance of the topic, to motivate students to study it, program questions, literature, a description of the laboratory tests, the formulation of protocols, which students must carry out its own, as well as questions for self-preparation for classes and a summary of the theoretical material.

Let us consider example for the theme: *«Solubility of substances. Concentrations of solutions»* contents of the independent students work.

Medical and biological value of dissolution: the formation of solutions is connect to dissolution of various substances in the relevant solvents. Such solvent is the water in alive organisms. The water is the basic constituent of all cells and tissues of organisms. It provides processes of an adsorption, movement of nutritious substances and products of metabolism in an organism. Besides the formation of water as final product of an oxidizing of substances is accompanied by excretion of a great quantity of energy (29 kJ/mol).

Knowledge of legitimacies of dissolution of gases it is necessary for study of such vital processes as transport of oxygen and product of an oxidizing nutritious substances - CO_2 by a blood. A quantitative basis of a solubility of gases - the Henry's and Dalton's, Sechenov's laws have major value not only in chemistry, but also in medicine, as the infringement of a solubility of gases in a blood can be caused pathological changes. The Henry's law, in particular, allows to open a pathology of diseases at the divers, pilots, which operation is connect to prompt transferring on medium with sharply distinguished atmospheric pressure. According to the Sechenov's law, not only electrolytes, but also protein and the lipids, which content in a blood can change, render influence on solubility in it O_2 and CO_2.

Program questions: a role of water and solutions in vital activity. Physico - chemical properties of water as bio-solvent. Thermodynamics of solution.Enthalpy and entropy changes for dissolution.Concept about ideal solution.

Ways of expressing of composition of a solution: percent by mass, molarity, molality, molar concentration of an equivalent, mole fraction.

Dissolution proses: dissolving solids in liquids; dissolving liquids in liquids; solubility of gases in liquids and its dependence on the various factors. Henry's and Dalton's.laws Influence of electrolytes on a solubility of gases. The Sechenov's.law A solubility of gases in a blood.

Research work:«Preparation of solutions of given concentration»

Problems for discussion:

-What is meant «solution»?

-What is: (a) a saturated solution; (b) supersaturated solution?

-What is meant by the general statement «like dissolves like»?

-Why are low – molecular- weight alcohols soluble in water, but high – molecular – weight alcohols insoluble or only sparingly soluble?

-How does an increase in temperature generally affect the solubility of: (a) solids in liquids; (b) liquids in liquids; (c) gases in liquids?

-What effect, if any, does an increase in pressure have on the solubility of: (a) solids in liquids; (b) liquids in liquids; (c) gases in liquids?

-What is the molarity of a sodium chloride solution that contains 6.82 g of NaCl in 450 ml of solution?

-Which of the following compounds would you expect to be water soluble? (a) $(NH_4)_3PO_4$; (b) H_2S; (c) CCl_4; (d) C_6H_6; (e) HCOOH; (f) CH_3OH; (g) NH_3; (h) HCl; (i) $Ca(NO_3)_2$.

-Explain why Na_2SO_4 is soluble in water but $BaSO_4$ is not.

-Predict how an increase in temperature might affect the solubility of each of the following substances in water (a) KNO_3; (b) $C1_2H_{22}O_{11}$; (c) SO_2; (d) O_2.

-How does the concentration of dissolved oxygen in water in a river at sea level compare with that in a mountain brook? Explain.

-What is the molality of a solution that contains 1.2 mol of a solute per 4.0 L of water? Assume that the density of water is 1.0 g mL^{-1}.

Throughout the independent work of students should be accompanied by a teacher who acts as coordinator of student actions.In the course of the controlled independent work of the students formed the ability search for the best possible answers, calculations, making situational problems in general chemistry; performing research skills training, develop skills to work with textbooks and modern scientific literature.

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